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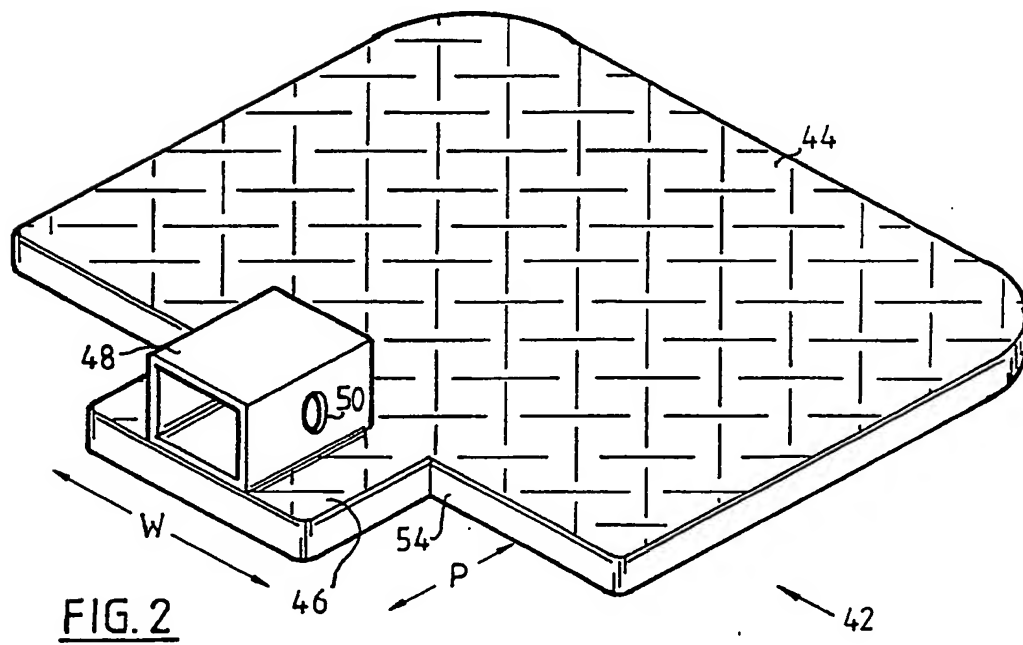
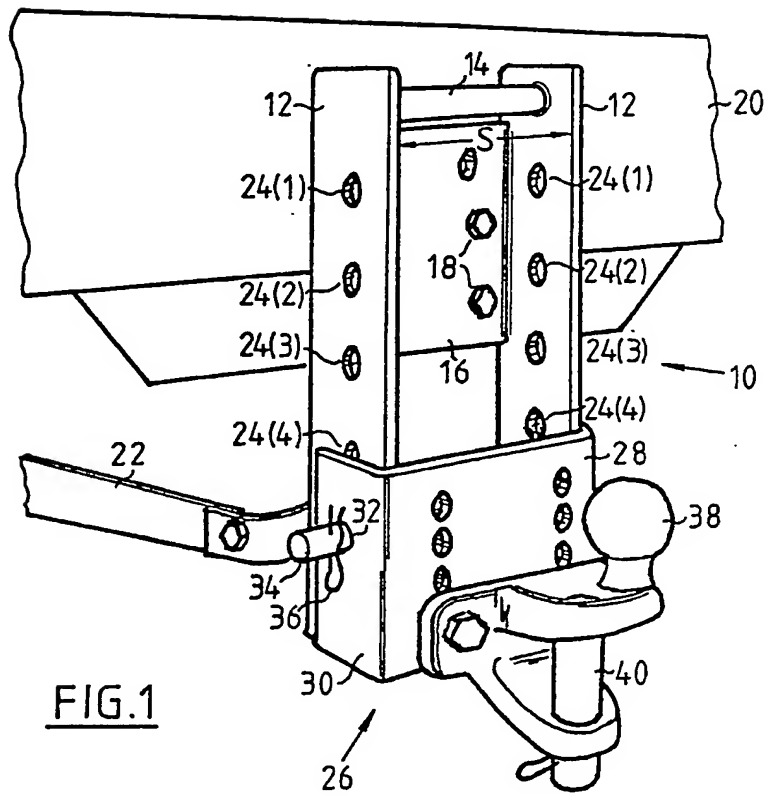
(56) Documents cited
GB 2124982 A US 4198070 A US 3799288 A
US 3740072 A

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(57) A step for facilitating access to the rear of a cross-country type of vehicle is provided by a platform 44 having a portion 46, 48 which can be attached by a pin to a towing hitch attachment of the vehicle. The hitch attachment comprises a pair of spaced flanges to which a member carrying a towing ball and/or towing pin is attached when the vehicle is used for towing.



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Description

ACCESS STEPS FOR CROSS-COUNTRY VEHICLES, ETC.

This invention relates to steps for motor vehicles, and in particular to steps to facilitate climbing into the back of a vehicle which can be generally described as a cross-country vehicle, such as, for example, a *Land-Rover* (Reg'd T M). However, although the access step of the invention was originally conceived for use with a *Land-Rover*, the invention is also applicable to other types of vehicles, such as lorries.

A vehicle such as a *Land-Rover* has a relatively high rear platform, which is typically just under 1m above ground level, and some people have difficulty in climbing into the rear of such a vehicle. It is possible to purchase, as an optional extra, a step which bolts onto a rear structural member of the vehicle to facilitate access. In order that these known steps do not cause a dangerous or inconvenient projection at the rear of the vehicle when not in use, they are generally hinged so that they can be folded away and have a spring or catch to hold them in the folded position. The known step therefore has a relatively complicated construction and accordingly is expensive.

An object of the present invention is to provide a simpler construction of step, which is accordingly cheaper to manufacture, and yet which does not project at the rear of the vehicle in a hazardous or inconvenient manner when not in use.

Many cross-country vehicles, such as *Land Rovers*, are fitted with a towing hitch attachment, an example of which is shown in Figure 1 of the accompanying drawings. The attachment 10 has a pair of vertical side plates 12 joined together by upper and lower cross-members (the upper one being visible at 14) and a mounting plate 16. The mounting plate is bolted at 18 to a rear structural member 20 of the vehicle. Additional steadying stays 22 may also be provided. The two side plates 12 are formed with five aligned pairs of holes 24(1) to 24(5). A towing hitch 26 has a U-shaped member 28, the limbs 30 of which embrace the side plates 12 and have a pair of aligned holes 32, so that the hitch 26 can be removably and adjustably fitted to the attachment 10 at any one of five different heights by means of a removable headed pin 34 being passed through the pair of holes 32 of the hitch 26 and any selected pair of holes 24(1) to 24(5) of the attachment 10. A locking clip 36 is provided to prevent the pin 34 working loose. The towing hitch has a tow-ball 38 and/or a removable tow-pin 40.

In accordance with the present invention, there is provided an access step comprising a foot-supporting platform, and means to enable the platform to be fitted to the general type of towing attachment described above using a pin passing through an aligned pair of holes of the towing attachment. An extremely simple form of construction is therefore possible. The step can be removed when not in use, merely by removing the pin, and can then be stowed away in the vehicle. Furthermore, the step of the invention has a particular advantage over the known type of permanently attached folding step, in that when it is used with the adjustable height type of towing attachment described above, the step can be fitted at different heights to the attachment.

Specific embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1, mentioned above, is a perspective view showing part of the rear of a *Land Rover* with a conventional adjustable height towing attachment and a towing hitch fitted thereto;

Figure 2 is an isometric view of one embodiment of step according to the present invention;

Figure 3 is a vertical sectional view, to a reduced scale, through the step of Figure 2 when fitted to the towing attachment shown in Figure 1; and

Figure 4 is an isometric view of another embodiment of step according to the present invention.

Referring to Figures 2 and 3, the step 42 comprises a generally rectangular platform 44 of steel chequer plate of a size such that a person can stand with both feet on the platform. The front of the platform has a projecting portion 46 of a width W slightly less than the spacing S (see Figure 1) between the side plates 12 of the towing attachment and projecting by an amount P slightly less than the distance D (see Figure 3) between the mounting plate 16 and the rear edges 56 of the side plates 12 of the towing attachment. An element 48 of steel box-section is welded on top of the projecting portion 46 of the platform and has a pair of aligned holes 50 formed in the verticals of the box-section element 48. In order to fit the step 42 to the towing attachment 10, the step is offered up to the towing attachment so that the pair of holes 50 in the box-section element 48 align with a selected pair 24(1) to 24(5) of the holes in

the side plates 12, and then a headed pin 52 (similar to the pin 34 for the towing hitch 26) is passed through all four aligned holes, and a locking clip (similar to the clip 36) is fitted to the pin 52 to prevent it working loose.

It should be noted that the portions 54 of the front edge of the platform 44 immediately to either side of the projecting portion 46 act as shoulders which bear on the rear edges 56 of the side plates of the towing attachment and thus prevent the step tilting downwardly when a load L is applied. Also, the provision of two holes in the box-section element 48 which engage the pin prevents the platform tilting sideways.

The thickness of the platform 44 itself is sufficient to stop it bending under a person's weight, or alternatively strengthening may be provided, for example by bending the edges of the platform to form a strengthening rim, or by welding strengthening ribs beneath the platform.

In a modification of the above arrangement, instead of the box-section element 48, one, or more preferably a pair of, lugs are welded to the projecting portion 46 of the platform in a similar position to the verticals of the box-section element.

A further modification is shown in Figure 4. In this case, the platform 44 has a pair of portions 58 which project to either side of the side plates 12 of the towing attachment and have upwardly bent tabs 60 which snugly embrace the side plates. A pair of aligned holes 62 are formed in the tabs 60 to receive the pin 52. In this case, the forward edge of the platform between the tabs 60 provides shoulders 64 which bear on the rear edges 56 of the side plates of the towing attachment to prevent the platform tilting downwardly when a person stands on the platform.

It will be appreciated that many other modifications may be made to the step without departing from the invention.

Claims

1. An access step for a vehicle having a towing attachment (10) formed with a pair of side plates (12) having an aligned pair of holes (24) therethrough, the step (42) comprising a foot-supporting platform (44), a pin (52) which can be fitted through the aligned holes of the towing attachment, and a connecting element (48;60) extending from the platform to engage the pin so that the platform is supported substantially horizontally by the towing attachment.
2. A step as claimed in claim 1, wherein the platform has a pair of front edge portions (54;64) which engage the rear edges (56) of the side plates at a level below the level of the pin to prevent downwards tilting of the platform when a load is placed thereon.
3. A step as claimed in claim 1 or 2, wherein the platform has a portion (46) which projects between the side plates of the towing attachment, the connecting element (48) extending upwardly from the projecting portion and having a hole (50) therethrough to receive the pin.
4. A step as claimed in claim 3, wherein the connecting element is in the form of a box-section (48) having two such holes (50) to engage the pin and prevent sideways tilting of the platform.
5. A step as claimed in claim 1 or 2, wherein the platform has first and second portions (58) which embrace the side plates of the towing attachment.
6. A step as claimed in claim 5, wherein the first and second portions of the platform have upwardly extending lugs (60) which form a pair of such connecting elements and which have holes (62) formed therethrough to receive the pin.
7. An access step for a vehicle, substantially as described with reference to the drawings.
8. A vehicle having a towing attachment formed with a pair of side plates having an aligned pair of holes therethrough, in combination with a step as claimed in any preceding claim removably fitted to the towing attachment.
9. A vehicle as claimed in claim 8, wherein the side plates of the towing attachment have a series (24[1]-[5]) of such aligned pairs of holes so that the height of the step can be adjusted.